

LARGE INTERACTIVE DISPLAYS ARE VITAL TO THE CLASSROOM ECOSYSTEM

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Education is like a living ecosystem, a group of interconnected elements, formed by the interaction of a community of students, parents and teachers with their pedagogical and technological environment. The interconnected elements in the ecosystem are both interdependent and synergistic. Our research and the work of many others, support the notion that the whole is greater than the sum of its parts.



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Pedagogical and technological priorities

Today most school systems have strategic technology priorities that include the conversion to mobile, cloud, 1:1, networking, and security. These are all valuable components in building a healthy technology layer in the classroom ecosystem.

The transformative power of mobile/digital content for school age children is not in much doubt, even in the disparate adoption of technology in Europe.

“positive changes observed ... when large interactive display devices are used.”

Mobile Skills

Mobile skills have advanced significantly among younger students in the past few years.

Social Media Usage

Each year younger and younger European children are developing social media profiles, using mobile and other devices. Children's use of social media for 9-10 year olds in 2014 looks a lot like that of 11-12 year olds in 2010.²

75% BYOD Allowed

In 2015, 75% of schools in Europe allowed BYOD. Another indicator is not as positive; at the same time, only 38% of European schools provided services to support BYOD devices.³

In spite of well-intentioned strategies, educators and administrators, constrained by budgets, appear to make suboptimal decisions. They traded off spending on the infrastructure and support that is necessary to effectively support mobile/laptop 1:1 programs and end up with user devices that are not well integrated. Some research advises that mobile technology is a great addition to the classroom but is insufficient to serve all classroom needs.⁴

Many elements are necessary for the ecosystem's health and effectiveness. These include technology elements such as mobile devices, education and management software, large interactive displays, sound, networking, and cloud. Large interactive displays are vital to the classroom ecosystem, and are pivotal in effective group and whole class pedagogy and student driven learning.

As we continue to drive education towards useable lifetime skills and preparing students for viable futures in a technology based society, group learning, collaboration, and the more social aspects of education are gaining importance and are beginning to be measured in some geographies.⁵

Student Outcomes

For the last several years we have been told that educational technology had little measureable impact on education outcomes.⁶ Several sources and our own research, indicate that technology alone has little impact, but a broad implementation addressing people, pedagogy and technology can have significant impact.

In three recent studies of K-12 classrooms in Germany, the UK, and Lithuania we find proof of the value of large format interactive displays.

- 1 A 2016 study involving 411 Lithuanian teachers and their students 6-19 years old**, reports multiple comments about the positive changes observed in classroom activities and pedagogy when large interactive display devices are used.⁷

2 In a 2016 study involving a specific school in Germany, both teachers and students reported important benefits from using intelligent whiteboards and associated technologies. Students reported improved pace, engagement, and the ability to review and revise content. Further, a strong association was made between the use of large scale displays and the benefits when teachers adopted activities enhancing sharing and collaboration.⁸

3 In a 2012-2014 study of a specific school in the UK, with multiple stages and instruments, over 500 teachers, students, and parents provided input about the impact of intelligent whiteboards. Students experienced increased frequency of active learning, teachers were able to better tailor lessons to meet the needs of students, and parents found their children to be more self-directed and more collaborative. Further measureable improvements were attributed to the technology, including reduced absence (5%+ to less than 2%), and strong improvements in average attainment levels in reading, writing, and mathematics.⁹

In 2016 SMART Technologies commissioned a study of teachers, administrators, and IT professionals in education. Over 400 responses were collected from 26 countries.¹⁰

We segmented the sample by use of mobile devices (tablets and phones) and large scale interactive displays (interactive whiteboards, flat panels, and projection) into four groups:

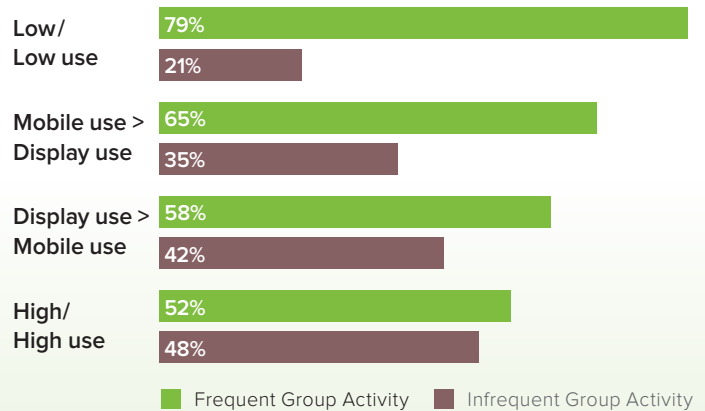
- High use of both technology sets. Generally daily/most lessons use: **29%**
- Low of use both technologies. Generally weekly or less frequent use: **26%**
- High use of mobile and low use of interactive displays: **21%**
- High use of interactive displays and low use of mobile: **24%**

Increased use of mobile and display technology is strongly related to software and pedagogy, specifically the frequency of group activity vs. individual activity. Further, increased use of technology, group pedagogy, and software is strongly related to student success.

The chart at the right displays the relationship between frequent group activity/pedagogy and mobile and display technology segments. It describes the 37% of the sample that reported group activity weekly or more frequently and how often they used display and mobile technology. Almost half off the segment with high use of both technologies reports frequent group activity.

Along with the increase in group pedagogy, key software use also increases with the frequency of mobile/display technology use. For example, frequent use of class collaborative software was reported in 24% of classrooms with low levels of use of both mobile and displays. For classrooms with high levels of both, class collaboration software was frequently used 72% of the time. Use of student collaboration software, class collaboration software, game based software, and content creation software all positively and significantly relate to group activity.

Group Activity & Device Use Groups

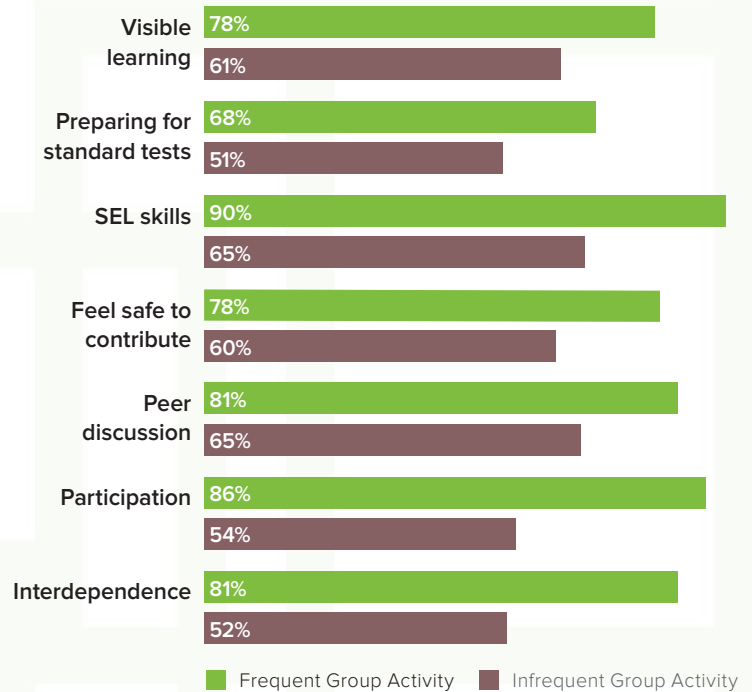


Students are winning

Multiple observed measures of student success all relate positively to group activity. The chart at the right displays the relationship between group activity and success measures. All are significant at the .100 level.

The three strongest changes are in SEL skills (an increase of 37%), participation (59%) and interdependence (55%). Group activity clearly matters in teaching the social oriented skills necessary in preparing students for the future. It is supported by a technology ecosystem with broad use of large scale interactive displays, mobile, software, and connectivity.

Group Activity & Student Success



Conclusions

The research shows that many things are required to prepare students for the future. Technology deployments alone do not drive outstanding student results. The effective and healthy ecosystem involves professional development for teachers and media specialists, pedagogy and activity related content, ongoing support and the integration of individual and group technologies.

It is clear that mobile and 1:1 are either here or about to be. Large scale interactive displays are also well-established in many environments. A trade off of any of the parts of the ecosystem is likely to be ineffective. Maximum benefits accrue from the thoughtful integration of all of the elements.

Endnotes

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